Chapter 3. Baseline Transportation Conditions

Travel demand models project future traffic conditions based upon household and employment forecasts. The City developed transportation forecasts for 2015 and 2030; the 2015 analysis provided information to help identify areas for which improvements will be needed in the mid-term, and the 2030 analysis shows long term needs. The City of Renton's transportation model includes different trip generation rates based on land use categories and factors such as household size, the number of workers in a household and employment types. Another key assumption for the City's model is how state and federal highways will change over time. This assumption is particularly critical for the City of Renton, given the substantial modifications to I-405 currently envisioned and partially funded by the I-405 Bus Rapid Transit and Congestion Relief Project (Nickel funding).

Land Use Assumptions

Future land use assumptions within the city limits reflect the City of Renton's Comprehensive Plan, and assumptions outside the City are drawn from the Puget Sound Regional Council's regional land use forecasts. The model assumes that the Boeing Renton property (South Lake Washington redevelopment) will be redeveloped consistent with the preferred vision (see **Appendix 3-A** for more detail). **Table 3-1** below shows the development assumptions for 2015 and 2030 associated with this project.

Table 3-1. South Lake Washington Redevelopment Assumptions

Sub-Area	Land Allocation	Land Use	2015 (Square feet)	2030 (Square feet)	
Fry's	100%	Big Box Retail	250,000	250,000	
A - Lot 3	70%	Big Box Retail	260,000	260,000	
- PSE	20%	5/1 Multifamily (80/acre)	0	530,000	470 du
	10%	Mid-Rise Office	0	310,000	
B	40%	Big Box Retail	135,000	135,000	
	60%	Retail Shops	125,000	205,000	
C	75%	Low-Rise Office/Lab	0	350,000	
	25%	Retail	50,000	50,000	
	Existing	Office (10-13…10-20)	0	660,000	
D	50%	Low-Rise Office/Lab	0	210,000	
	50%	Townhouse (25/ net acre)	0	210,000	185 du
E	50%	Low-Rise Office/Lab	0	340,000	
	50%	Townhouse (25/acre)	0	330,000	290 du
F	75%	Mid-Rise Office	0	840,000	
	25%	3/1 Multifamily (50/acre)	0	150,000	135 du
G	50%	Mid-Rise Office/Lab	0	2,820,000	
	40%	5/1 Multifamily (80/acre)	0	2,020,000	1,770 du
	5%	Hotel	0	360,000	360 rooms
	5%	Retail*	0	160,000	
Total			900,000	10,190,000	2,850 du 360 hotel rooms

Transportation Network Assumptions

Figures 3-1 and **3-2** illustrate the assumed transportation networks for 2015 and 2030. The study assumed that WSDOT will complete the full build-out of I-405 improvements by 2030. The study assumes HOV access at North 8th Street and implementation of Bus Rapid Transit along I-405 and through Renton by 2030.

Key assumptions for the 2015 model include:

- I-405
  - Two lanes in each direction north of SR 167
  - One lane in each direction south of SR 167
  - I-405/Talbot Ave: a new interchange (for traffic to and from I-405 north)
  - I-405/Lind Ave: new interchange (for traffic to and from I-405 south)
  - Northbound and southbound frontage road connections between I-405/Talbot Road and I-405/Lind Avenue Southwest interchanges
  - Maintain Northbound SR 167 to Southbound I-405 loop ramp

- SR 167
  - One additional lane in each direction south of I-405

- City Streets (unless otherwise noted, projects will be completed by WSDOT)
  - Rainier Ave: add a NB lane from Southwest 7th Street to South 4th Place (City project)
  - Widen Lind Avenue from 5 to 7 lanes between Grady Way and Southeast 16th Street as part of the new interchange
  - Improve the Grady Way/Lind Avenue intersection with northbound and westbound dual left turns and eastbound right turn lane
  - Improve the Lind Avenue/Southeast 16th Street intersection
  - Coordinate the signals on Lind Avenue, including new intersections with the I-405 ramps
  - Widen Talbot Road to 6 lanes between Renton Village Place and South Puget Drive
  - Improve the Talbot Avenue/South Puget Drive intersection
  - Coordinate the signals on Talbot Avenue, including new intersections with the I-405 ramps

The 2030 model includes the above assumptions plus several more:

- I-405's HOV ramps to and from Rainier Avenue to I-405

- I-405: two additional lanes in each direction south of SR 167 (as compared to the existing configuration)

- Rainier Avenue/East Valley
  - Connect Rainier Avenue and East Valley
  - Widen East Valley to 5 lanes south of Southwest 16th Street
  - New East Valley interchange with SR 167

(Note: the I-405 Master Plan is being revised with Rainier Avenue maintaining connection to SR 167 and without connecting to East Valley Road. East Valley Road would be kept as a 3-lane road. **Figure 3-2A** shows the most current I-405/SR 167 interchange Master Plan concept.)

Figure 3-1. 2015 Transportation Network Assumptions

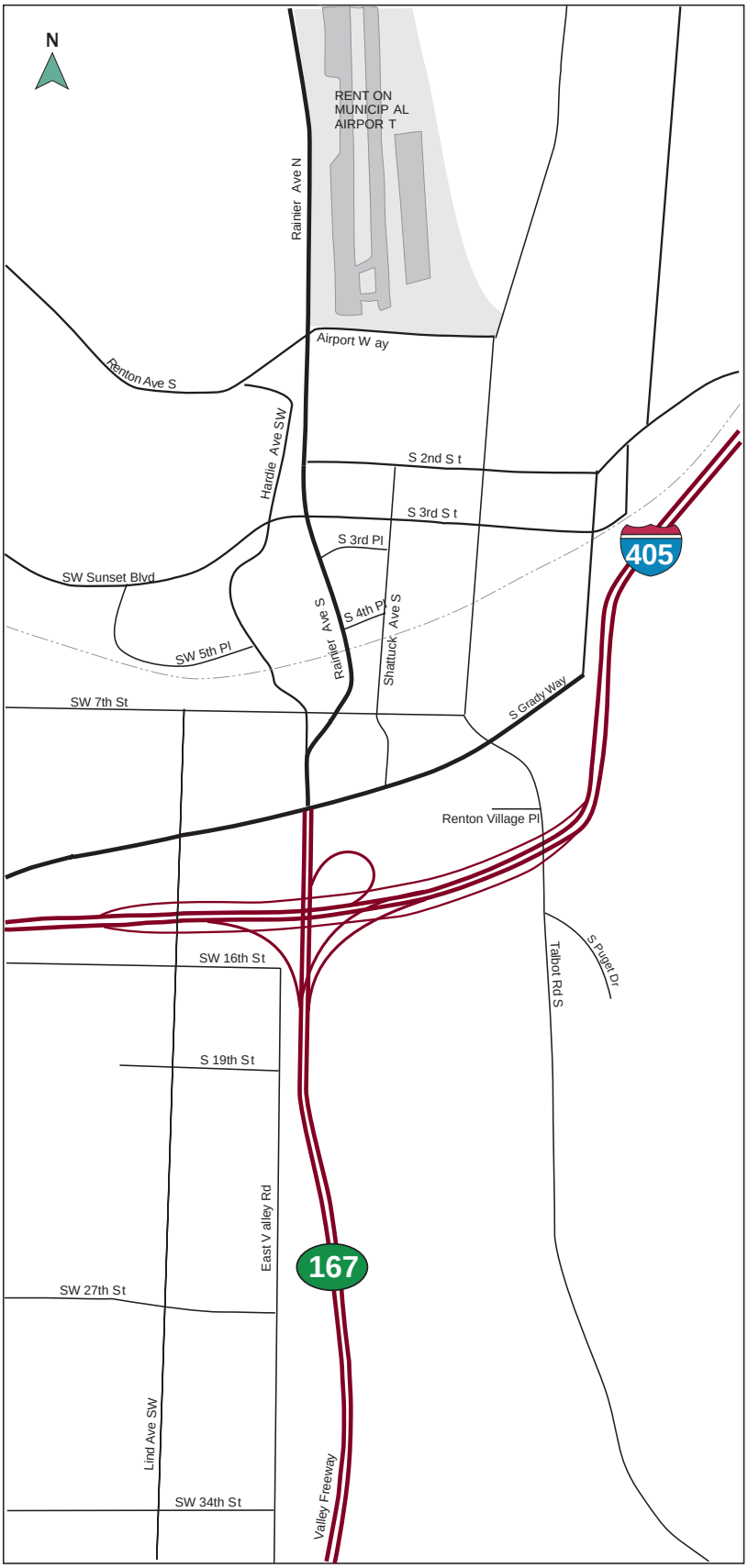


Figure 3-2. 2030 Transportation Network Assumptions

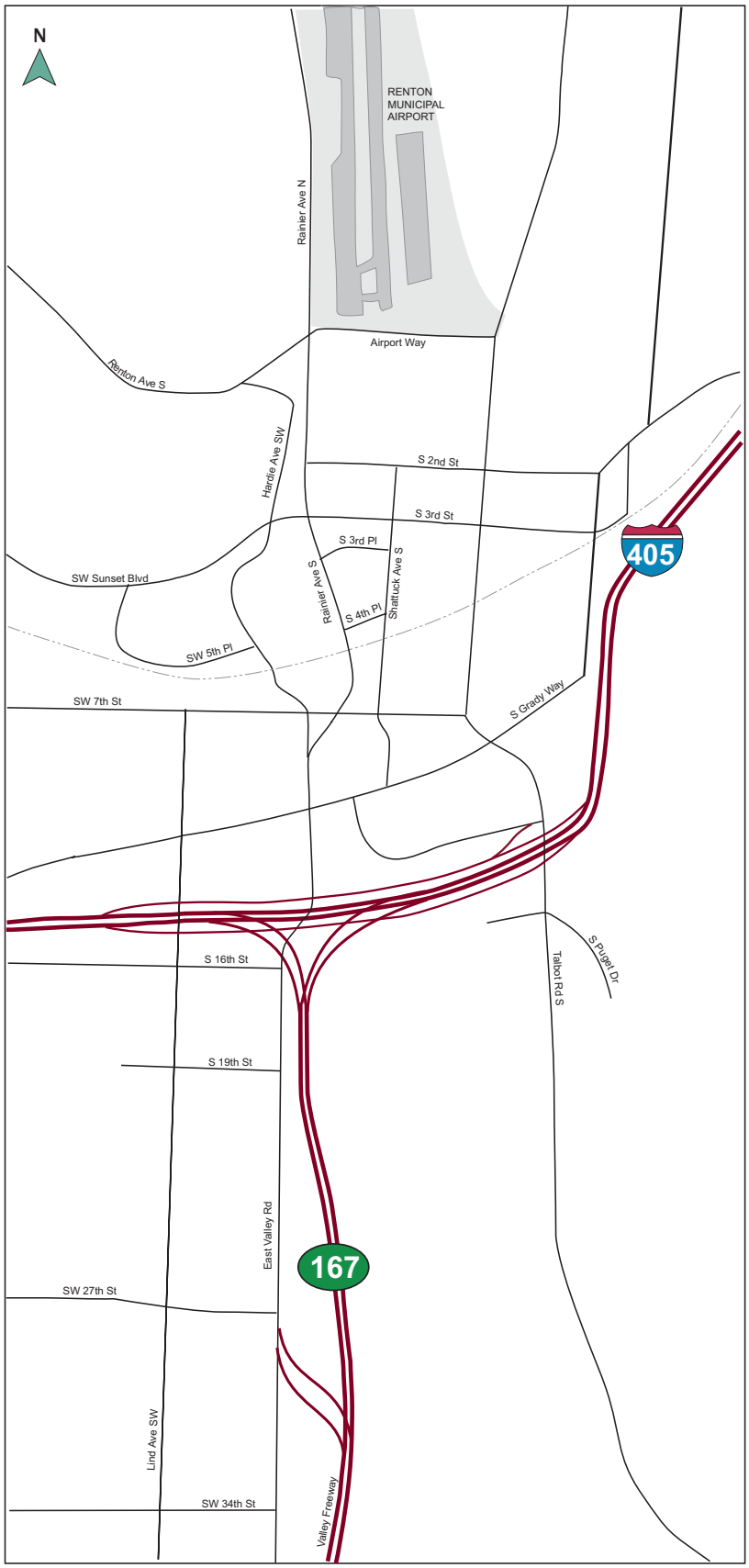
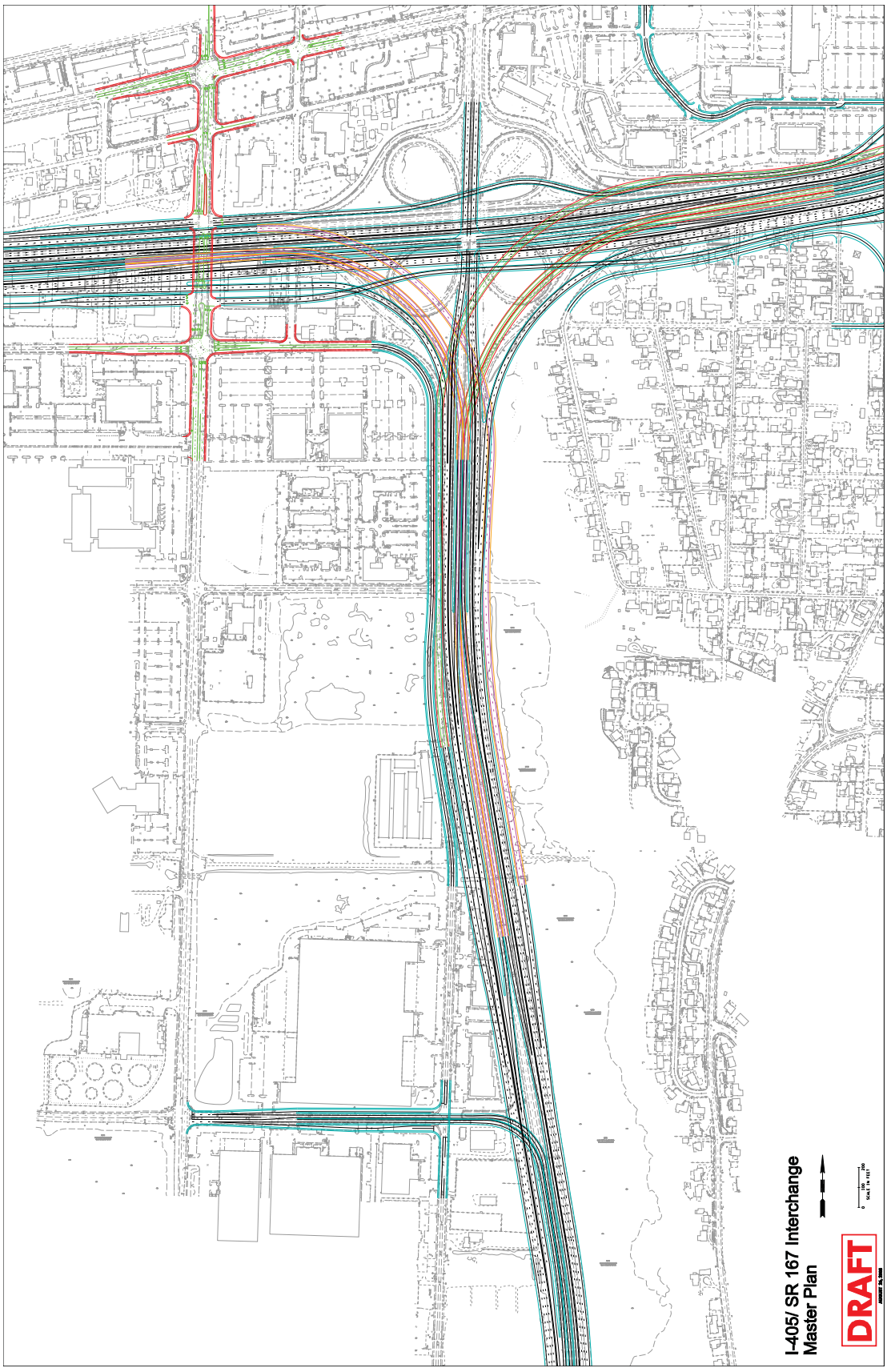


Figure 3-2A. Revised I-405/SR 167 Interchange Master Plan Concept



Traffic Conditions

TRAFFIC VOLUMES

Figure 3-3 illustrates how traffic volumes will change from the existing conditions by 2015 and 2030. **Appendix 3-B** provides a spreadsheet showing the percent changes at each location.

- By 2015, Southbound Lind Avenue Southwest, south of South Grady Way will be carrying twice as much traffic as in 2002, due to the new I-405 ramps and frontage roads at that location. In 2015, Lind Avenue Southwest between South Grady Way and Southwest 7th Street will have 60% more traffic in both directions.

- Peak hour traffic on Rainier Avenue North between Airport Way and the north City Limits in the northbound direction is projected to increase by 50% by 2015, and southbound increase is 12.6% by 2015, and 15.6% by 2030.

Changes in PM Peak Hour Traffic Volumes: 2002 – 2015

Greater than 100%
- SB Lind Ave SW south of S Grady Way (113.2%)

50 – 100%
- NB Rainier Ave S north of Airport Way (50.6%)
- NB East Valley Road south of SW 27th Street (59%)
- SB East Valley Road south of SW 27th Street (91.3%)
- NB Lind Ave SW south of SW 7th Street (61.7%)
- SB Lind Ave SW south of SW 7th Street (60%)
- WB S Grady Way east of Lind Ave SW (51.9%)

Reduced Traffic Volumes
- NB Rainier Ave S north of S Grady Way (-15.4%)
- NB Rainier Ave S south of S Grady Way (-16.9%)
- SB Rainier Ave S south of S Grady Way (-17.7%)
- SB Talbot Road S south of S Grady Way (-11.7%)
- WB S Grady Way east of Rainier Ave S (-11%)

Changes in PM Peak Hour Traffic Volumes: 2015 – 2030

Greater than 100%
- NB East Valley Road south of S 19th St (227.5%)
- SB East Valley Road south of S 19th St (300%)
- NB East Valley Road south of SW 27th St (158.1%)
- SB East Valley Road south of SW 27th St (108%)

50 – 100%
- NB Rainier Ave S north of S Grady Way (52.7%)
- SB Lind Ave SW south of S 16th St (64%)

Reduced Traffic Volumes
- SB Rainier Ave S south of S Grady Way (-15.5%)
- EB South 3rd St east of Hardie Ave SW (-4.2%)
- EB South Grady Way east of Lind Ave SW (-2%)
- EB South Grady Way east of Rainier Ave S (-1.7%)
- WB South Grady Way east of Rainier Ave S (-11%)
- EB South Grady Way west of Talbot Road S (-0.6%)

- Rainier Avenue north of Southwest 7th street will be busiest peak hour segment in 2015 and 2030, compared to south of South Grady Way today
- Peak hour traffic on Hardie Avenue Southwest will increase 50% by 2030, but traffic volumes will be less than a quarter of those on Rainier Avenue South.
- South Grady Way will remain the most heavily used east-west corridor during the peak hour. Southbound peak hour traffic congestion on South Grady Way will shift from the intersection at Rainier Avenue South to the intersection at Lind Avenue Southwest.
- Peak hour traffic on Rainier at Grady will decrease 30% by 2030 (15% by 2015). (This figure may change due to the new Master Plan.)
- Peak hour traffic on East Valley Road will increase somewhat by 2015. Much larger increases by 2030 will occur because of the connection of East Valley Road to Rainier Avenue and a new SR 167 interchange at Southwest 34th Street and ramp connections to East Valley Road.

Changes in PM Peak Hour Traffic Volumes: 2002 – 2030

Greater than 100%

- NB East Valley Road south of S 19th St (247.9%)
- SB East Valley Road south of S 19th St (300%)
- NB East Valley Road south of SW 27th St (310.3%)
- SB East Valley Road south of SW 27th St (297.8%)
- NB Lind Ave SW south of SW 7th St (102.2%)
- SB Lind Ave SW south of S Grady Way (183%)

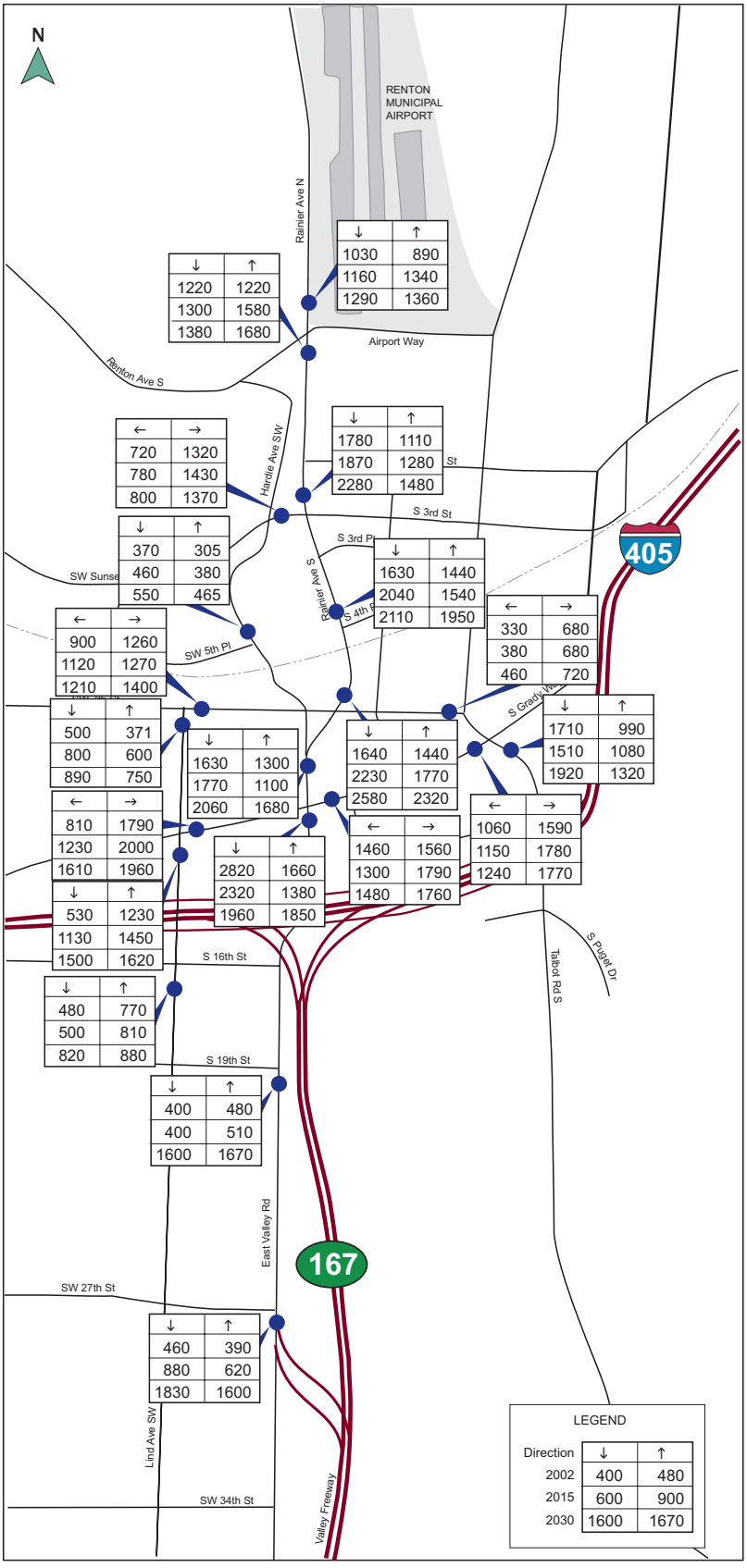
50 – 100%

- NB Rainier Ave S north of Airport Way (52.8%)
- NB Rainier Ave S north of SW 7th Street (61.1%)
- SB Rainier Ave S north of SW 7th Street (57.3%)
- NB Hardie Ave SW north of SW 5th Place (52.5%)
- SB Lind Ave SW south of SW 7th Street (78%)
- SB Lind Ave SW south of S 16th Street (70.8%)
- WB S Grady Way east of Lind Ave SW (98.8%)

Reduced Traffic Volumes

- SB Rainier Ave S south of S Grady Way (-30.5%)

Figure 3-3. 2002, 2015 and 2030 PM Peak Hour Traffic Volumes



TRAFFIC OPERATIONS ANALYSIS

Figure 3-4 provides the average intersection levels of service for 2015 and 2030, compared to the existing conditions (2002). Note that the networks for 2015 and 2030 assumes that several intersections on Grady Way, Lind Avenue and Talbot Road will be improved by WSDOT. The projected levels of service reflect those improvements. **Appendix 3-**C provides additional detail for levels of service and delay at signalized and unsignalized intersections.

Key level of service findings for 2015 include:

- Two intersections degrade from LOS C to LOS D:
  - Southwest 7th Street and Lind Avenue Southwest
  - Lind Avenue Southwest and South Grady Way
- The intersection of Rainier Avenue South and South Grady Way improves from LOS F to E

Key level of service findings for 2030 include:

- From 2015 to 2030, two intersections degrade from LOS B to C
  - Rainier Avenue South and South 3rd Street
  - Lind Avenue Southwest and South 16th Street
- From 2015 to 2030, two intersections degrade from LOS C to D
  - Southwest Sunset Boulevard and Rainier Avenue South
  - Talbot Road South and South Puget Drive
- From 2015 to 2030, one intersection degrades from LOS C to E, and two intersections degrade from LOS D to E
  - Lind Avenue Southwest and the northbound on-ramp to I-405 drops from LOS C to E
  - Southwest 7th Street and Rainier Avenue South drops from LOS D to E
  - South Grady Way and Talbot Road South drops from LOS D to E
- From 2015 to 2030, the intersection of Southwest 7th Street and Shattuck Avenue South improves from unsignalized LOS F to signalized LOS C (It was assumed that this intersection would be signalized by 2030.)

(It is possible that the results of 2015 and 2030 traffic forecasts could change due to the changes in the I-405 Master Plan.)

Figure 3-4. 2002, 2015 and 2030 PM Peak Hour Levels of Service